Remarks

Reconsideration of this Application is respectfully requested. Claims 1-4 are currently amended and claim 16 has been canceled. Claim 20 has been added. No new matter has been added. Claims 1-15 and 17-20 are currently pending.

Allowable Subject Matter

The Applicants wish to thank the Examiner for the indication that claims 2-4 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The Applicants have amended claims 2-4 into independent form including all limitations of the base claims and any intervening claims. Accordingly, it is submitted that claims 2-4 are now allowable over the cited prior art.

Restriction Confirmation

The Applicants affirm the election of Group I without traverse originally elected over the telephone with the Examiner on June 25, 2004. The Applicants have canceled claim 16.

Rejections Under 35 U.S.C. §102

The Office Action rejected claims 1, 5, 6, 8-15 and 17-19 under 35 U.S.C. §102(b) for being allegedly anticipated by D. Wallner et al., "Key Management For Multicast: Issues and Architecture, June 1999 ("Wallner"). The Applicants respectfully traverse the rejection.

Claims 1, 5, 6, and 8-15 recite, *inter alia*, a method that includes associating each non-leaf node with a corresponding set of keys wherein each key in said corresponding set of keys further corresponds to at least one child node of said non-leaf node. Claims 17-19 recite, *inter alia*, a system that includes a plurality of sets of associated keys where the set of associated keys comprises keys associated with subsets of child nodes of a non-leaf node.

Wallner fails to disclose each and every element of the claimed invention as recited by claims 1, 5, 6, and 8-15. More particularly, Wallner fails to disclose associating each non-leaf node with a corresponding set of keys where each key in the corresponding set of keys further corresponds to at least one child node of the non-leaf node as recited by claims 1, 5, 6 and 8-15 and a plurality of sets of associated keys where the set of associated keys comprises keys associated with subsets of child nodes of a non-leaf node as recited by claims 17-19.

Rather, Wallner discloses a hierarchical tree approach to key management in a multicast environment (see Pg. 12). Wallner discloses that the server and the users hold keys in the Wallner hierarchical tree approach (see Pg. 12). More particularly, the server holds the keys for the non-leaf nodes as well as the keys (KEKs) for the users. A user holds only his unique key and the keys of the non-leaf nodes from the user to the server. It is clear from Fig. 2 (see pg. 13) that Wallner merely discloses that each non-leaf node, e.g., Key F, is associated with a single key. In contrast, claims 1, 5, 6, 8-15 and 17-19 recite a set of keys associated with each non-leaf node. Clearly, Wallner does not disclose that the non-leaf node include a corresponding set of keys where each key in said corresponding set of keys further corresponds to at least one child node of said non-leaf node.

The Office Action apparently relied on the §Exclusion Principle of Wallner to anticipate non-leaf node include a corresponding set of keys where each key in said corresponding set of keys further corresponds to at least one child node of said non-leaf node. The Applicants respectfully disagree. The Applicants have recognized this portion of Wallner as drawback and disadvantage in the background section of the specification because of the large number of messages being transmitted for updates. As such, the invention as recited by claims 1, 5, 6, 8-15 and 17-19 overcomes this disadvantage.

Accordingly, since Wallner fails to disclose that the non-leaf node include a corresponding set of keys where each key in the corresponding set of keys further corresponds to at least one child node of said non-leaf node and a plurality of sets of associated keys where the set of associated keys comprises keys associated with subsets of child nodes of a non-leaf node, Wallner does not anticipate claim 1, 5, 6, 8-15 and 17-19. Thus, claims 1, 5, 8-15, and 17-19 are patentable over the prior art.

Rejections Under 35 U.S.C. §103(a)

The Office Action rejected claims 7 and 18 under 35 U.S.C. §103(a) as being allegedly unpatentable over Wallner in view of David A. McGrew et al., "Key Establishment In Large Dynamic Group Using One-Way Function Trees, May 1998 ("McGrew"). The Applicant respectfully traverses the rejection.

Claim 7 recite, *inter alia*, a method that includes associating each non-leaf node with a corresponding set of keys wherein each key in said corresponding set of keys further corresponds to at least one child node of said non-leaf node. Claims 18 recite, *inter alia*, a system that

includes a plurality of sets of associated keys where the set of associated keys comprises keys associated with subsets of child nodes of a non-leaf node.

For at least the reasons given above, Wallner fails to disclose, teach or suggest the claimed invention as recited by claims 7 and 19. McGrew fails to rectify this deficiency. More particularly, McGrew teaches an algorithm for establishing shared cryptographic keys using one-way function trees. McGrew fails to teach or associating each non-leaf node with a corresponding set of keys wherein each key in said corresponding set of keys further corresponds to at least one child node of said non-leaf node or a system that includes a plurality of sets of associated keys where the set of associated keys comprises keys associated with subsets of child nodes of a non-leaf node. Accordingly, McGrew also fails to teach and every claim element of the invention as recited by 7 and 18.

Since Wallner and McGrew each fails to suggest the invention as recited by claims 7 and 18, the combination of Wallner and McGrew also fails to teach each and every claim element of the claimed invention. Accordingly, the invention as recited by claims 7 and 18 is patentable over the cited prior art.

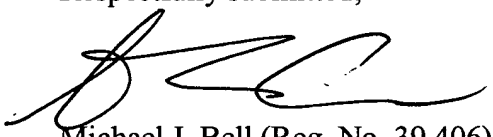
New claim 20 is allowable for at least the reasons given above.

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully submitted,



Michael J. Bell (Reg. No. 39,406)
Anderson I. Chen (Reg. No. 44,436)

Date: September 29, 2004

HOWREY SIMON ARNOLD & WHITE, LLP
Box No. 34
1299 Pennsylvania Avenue, N.W.
Washington, D.C. 20004-2402
(202) 783-0800